ABSTRACT OF THE DISCLOSURE

A power amplifier pre-distorter is formed by a FIR filter structure which includes an individual look-up table for each filter tap, where each look-up table represents a sampled polynomial in a variable representing signal amplitude, and means for selecting, from each filter tap look-up table, a filter coefficient that depends on the amplitude of a corresponding complex signal value to be multiplied by the filter tap. A training method for such a pre-distorter determines (S1) a first estimate of a first look-up table assigned to a first filter tap, assuming a second look-up table assigned to a second filter tap is set to predetermined table values. Thereafter the method determines (S2) a second estimate of the second look-up table, assuming the first look-up table is set to the determined first estimate. If deemed necessary, the method includes the further steps (a) refining (S3) the first estimate refined, assuming the second look-up table is set to the latest determined second estimate, and (b) refining (S4) the second estimate, assuming the first look-up table is set to the latest determined first estimate. Steps (a) and (b) may be repeated (S5) until convergence is reached.

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(54) Title: POWER AMPLIFIER PRE-DISTORTION
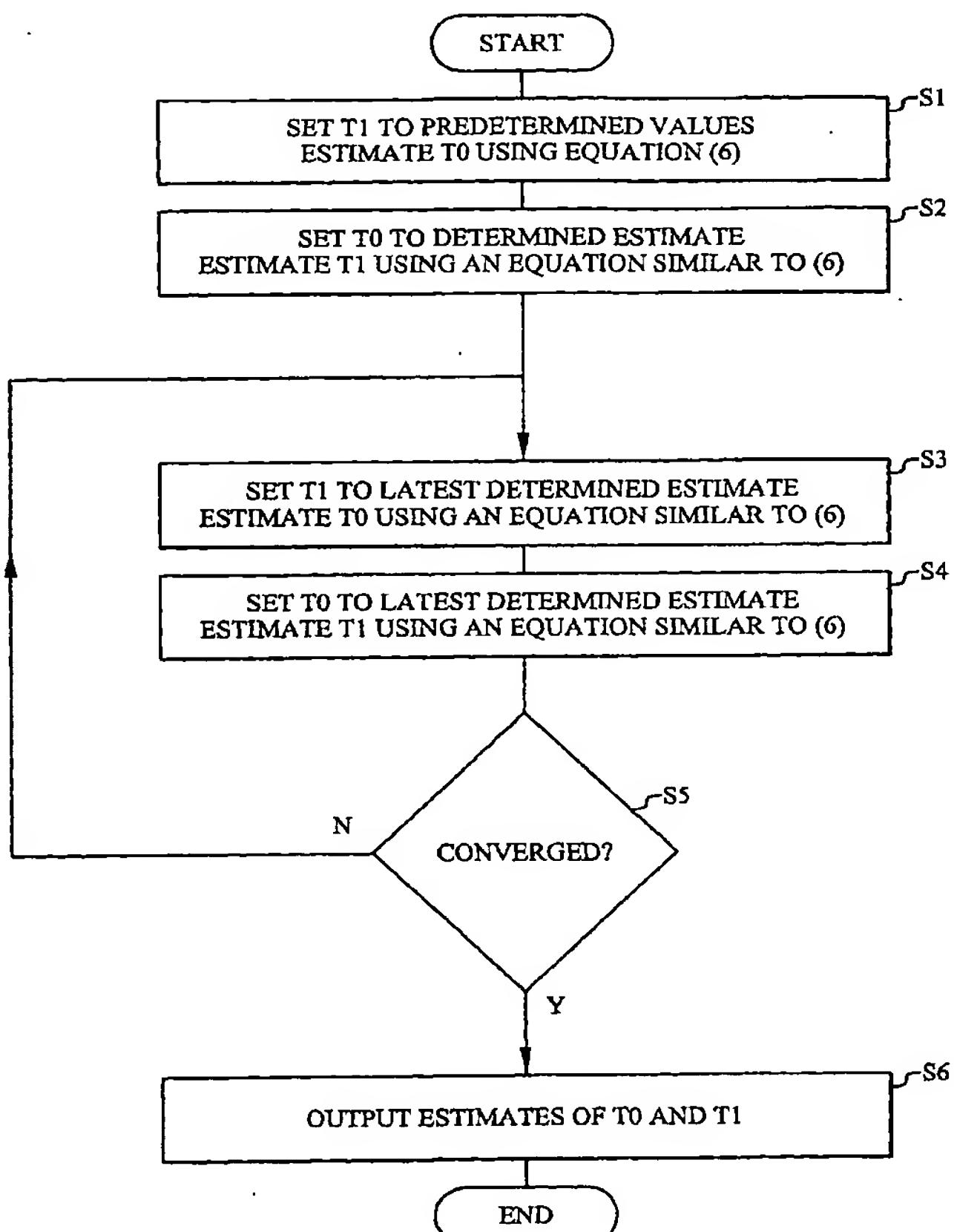
(57) Abstract: A power amplifier pre-distorter is formed by a FIR filter structure which includes an individual look-up table for each filter tap, where each look-up table represents a sampled polynomial in a variable representing signal amplitude, and means for selecting, from each filter tap look-up table, a filter coefficient that depends on the amplitude of a corresponding complex signal value to be multiplied by the filter tap. A training method for such a pre-distorter determines (S1) a first estimate of a first look-up table assigned to a first filter tap, assuming a second look-up table assigned to a second filter tap is set to predetermined table values. Thereafter the method determines (S2) a second estimate of the second look-up table, assuming the first look-up table is set to the determined first estimate. If deemed necessary, the method includes the further steps (a) refining (S3) the first estimate refined, assuming the second look-up table is set to the latest determined second estimate, and (b) refining (S4) the second estimate, assuming the first look-up table is set to the latest determined first estimate. Steps (a) and (b) may be repeated (S5) until convergence is reached.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.